## III. AMENDMENTS TO THE DRAWINGS:

The attached sheet of drawings includes changes to Figure 1. This sheet, which includes only Figure 1, replaces the original sheet including only Figure 1. In Figure 1, the word "mage" has been replaced with --Image--.

Attachment: One Replacement Sheet

One Annotated Sheet showing Changes

## IV. REMARKS

The specification has been amended to ensure that the definition used throughout the specification for "size L of the eyeball" is "the length from the surface of the cornea to the eyeground" as supported on page 5, lines 11-16, of the specification as originally filed and as would be recognized by a person of ordinary skill in the art. The drawings have been amended to correct a typographical error.

Claim 5 has been canceled without prejudice. Claims 1-4 and 6 have been amended, and new claims 7 and 8 have been added. More specifically, claims 1-4 and 6 have been amended to remove the "step-plus-function" language from these claims. Consequently, claims 1-4 and 6 no longer invoke 35 U.S.C. § 112, sixth paragraph, which has a broadening effect on the scope of these claims. In claims 1-4, the preamble has been amended to recite "A method...," which has no further limiting effect on the scope of these claims. Claims 1 and 6 have been additionally amended to recite "(A) measuring a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground using a measuring device;" and "(B) setting an eyeball template according to the measured length and radii;" as supported on page 5, lines 11-16, and on page 11, lines 12-18, of the specification as originally filed. Claim 3 has been amended to provide antecedent basis for "corresponding points in the superimposed portions d," which has no further limiting effect on the scope of claim 3.

New claims 7 and 8 correspond to original claims 1 and 6, respectively, and recite "step-plus-function" language intended to invoke 35 U.S.C. § 112, sixth paragraph. Claims 7 and 8 now recite "a shape measuring step (A) in which a length from surface of a cornea to

the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground are measured using a measuring device;" and "an eyeball setting step (B) for setting an eyeball template according to the measured length and radii;" as supported on page 5, lines 11-16, and on page 11, lines 12-18, of the specification as originally filed.

The present amendment adds no new matter to the application.

A. **The Invention**

The present invention pertains broadly to methods for displaying an eyeground three dimensionally and measuring the coordinates thereof, such as may be used to image and display the actual sizes and shapes of eyeballs of different people. In accordance with one embodiment of the present invention, a method of three dimensionally displaying an eyeground and measuring the coordinates is provided that includes the steps recited by independent claim 1. In accordance with another embodiment of the present invention, a computer readable storage medium that stores a program for displaying an eyeground three dimensionally and measuring the coordinates thereof is provided to operate the computer to execute the steps recited by independent claim 6. In accordance with yet another embodiment of the present invention, a method of three dimensionally displaying an eyeground and measuring the coordinates is provided that includes the steps recited by independent claim 7. In accordance with still another embodiment of the present invention, a computer readable storage medium that stores a program for displaying an eyeground three dimensionally and measuring the coordinates thereof is provided to operate the computer to execute the steps recited by independent claim 8.

Various other embodiments, in accordance with the present invention, are provided in the dependent claims. All of the embodiments of the present invention involve measuring "a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground" and "setting an eyeball template according to the measured length and radii," which provides the advantage that, even if the eyeball that is measured is deformed from being a perfect sphere, an accurate template can be set. This feature is advantageous because the eyeballs of different people (i.e., patients) vary individually in size and shape. Furthermore, the embodiments of the present invention involve "pasting a number of images on the eyeball template according to the eyeball parameter," which makes it possible to precisely produce a three dimensional image of the eyeground even when the eyeball of a person (i.e., patient) is deformed from being a perfect sphere (i.e., is not a perfect sphere).

B. **The Rejections**

Claim 5 stands rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter.

Claims 1-6 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Sinclair et al. (U.S. Patent 5,766,016, hereafter the "Sinclair Patent") in view of Kobayashi (U.S. Patent 5,353,073, hereafter the "Kobayashi Patent") and Berger et al. (U.S. Patent 6,454,410 B1, hereafter the "Berger Patent").

Applicants respectfully traverse the rejections and request reconsideration of the above-captioned application for the following reasons.

C. **Applicants' Arguments**

A prima facie case of obviousness requires a showing that the scope and content of the prior art teaches each and every element of the claimed invention, and that the prior art provides some teaching, suggestion or motivation to combine the references to produce the claimed invention. In re Oetiker, 24 U.S.P.Q.2d 1443 (Fed. Cir. 1992); In re Vaeck, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). In this case, the Examiner has failed to establish a prima facie case of obviousness because neither the Sinclair Patent, the Kobayashi Patent, nor the Berger Patent teach, or suggest, (1) the steps of : "(A) measuring a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground using a measuring device" and "(B) setting an eyeball template according to the measured length and radii" as recited in independent claims 1 and 6, and (2) "a shape measuring step (A) in which a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground are measured using a measuring device" and "an eyeball setting step (B) for setting an eyeball template according to the measured length and radii" as recited in independent claims 7 and 8.

i. **The Sinclair Patent**

The Sinclair Patent teaches a "surgical simulator and method for simulating surgical procedure," wherein photographs of the sclera, iris, zonules and retina of an actual eye are taken and then texture mapped on geometric surfaces, and a three-dimensional mathematical model of the eye is developed from the geometric surfaces in order to portray a visual image

of an eye for the purposes of simulating eye surgery (col. 8, lines 32-58). As admitted by the Examiner, the Sinclair Patent does not teach, or suggest, measuring the eye to determine the geometric surface or taking and mapping multiple images of the retina to form a three-dimensional model (Office Action, dated April 4, 2006, at 4, lines 11-12). Thus, the Sinclair Patent does not teach, or suggest, (1) the steps of: "(A) measuring a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground using a measuring device" and "(B) setting an eyeball template according to the measured length and radii" as recited in independent claims 1 and 6, and (2) "a shape measuring step (A) in which a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground are measured using a measuring device" and "an eyeball setting step (B) for setting an eyeball template according to the measured length and radii" as recited in independent claims 7 and 8.

However, this is not the only deficiency in the teachings of the Sinclair Patent. The Sinclair Patent also does not teach, or even suggest, (3) "(D) obtaining an eyeball parameter g that represents a positional relationship between the eyeground and images according to positions H of superimposed portions on the images;" as recited by independent claims 1 and 6, and "a parameter setting step (D) for obtaining an eyeball parameter g that represents the positional relationship between the eyeground and images according to positions H of the superimposed portions on the images" as recited in claims 7 and 8 of the instant application.

**ii. The Kobayashi Patent**

The Kobayashi Patent teaches a "three-dimensional shape measurement

system" as shown in Figure 1 that produces three-dimensional information of an object, such as the fundus of an eye, by directing light onto the object, receiving the light reflected from the object, photoelectrically converting the received light and processing the resulting electric signal (See Abstract). The system shown in Figure 1 is provided with laser beam control circuitry for focal point shifting in the direction of the optical axis and a pair of detectors for detecting variation in the focal position of light reflected from the object (eye fundus) and deriving information with respect to the shape of the object in the direction of the optical axis (See Abstract). The Kobayashi Patent is completely silent with respect to "measuring length from the surface of the cornea to the eyeground of an eyeball" as recited in claims 1 and 6. Thus, the Kobayashi Patent does not teach, or suggest, (1) the steps of: "(A) measuring a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground using a measuring device" and "(B) setting an eyeball template according to the measured length and radii" as recited in independent claims 1 and 6, and (2) "a shape measuring step (A) in which a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground are measured using a measuring device" and "an eyeball setting step (B) for setting an eyeball template according to the measured length and radii" as recited in independent claims 7 and 8.

However, this is not the only deficiency in the teachings of the Kobayashi Patent. The Kobayashi Patent also does not teach, or even suggest, (3) "(D) obtaining an eyeball parameter g that represents a positional relationship between the eyeground and images according to positions H of superimposed portions on the images;" as recited by independent

claims 1 and 6, and "a parameter setting step (D) for obtaining an eyeball parameter g that represents the positional relationship between the eyeground and images according to positions H of the superimposed portions on the images" as recited in claims 7 and 8 of the instant application.

iii. **The Berger Patent**

The Berger Patent teaches "mosaicing and enhancement of images for ophthalmic diagnosis and documentation," which provides a method for mosaicing images of the eye to create high resolution, wide-field ophthalmic images by acquiring a first image of the eye and by acquiring a second image of the eye, then processing the two images to produce a mosaic representation (See Abstract). The second image includes a portion of the first image, and to guide in acquiring the second image, the first image may be viewed while acquiring the second image using either a direct ophthalmoscope or a slitlamp biomicroscope (See Abstract). Images may be converted to digital format, and the processing of the images includes aligning and merging the images, and conducting real-time processing and non-real time processing (See Abstract).

However, the Berger Patent is completely silent with respect to "measuring length from the surface of the cornea to the eyeground of an eyeball" as recited in claims 1 and 6. Thus, the Berger Patent does not teach, or suggest, (1) the steps of: "(A) measuring a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground using a measuring device" and "(B) setting an eyeball template according to the measured length and radii" as recited in independent claims 1 and 6, and (2)

"a shape measuring step (A) in which a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground are measured using a measuring device" and "an eyeball setting step (B) for setting an eyeball template according to the measured length and radii" as recited in independent claims 7 and 8.

However, this is not the only deficiency in the teachings of the Berger Patent. The Berger Patent also does not teach, or even suggest, (3) "(D) obtaining an eyeball parameter g that represents a positional relationship between the eyeground and images according to positions H of superimposed portions on the images;" as recited by independent claims 1 and 6, and "a parameter setting step (D) for obtaining an eyeball parameter g that represents the positional relationship between the eyeground and images according to positions H of the superimposed portions on the images" as recited in claims 7 and 8 of the instant application.

Because neither the Sinclair Patent, the Kobayashi Patent nor the Berger Patent teach, or suggest, multiple limitations of the independent claims 1 and 6-8, such as (1) the steps of: "(A) measuring a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground using a measuring device" and "(B) setting an eyeball template according to the measured length and radii" as recited in independent claims 1 and 6, and (2) "a shape measuring step (A) in which a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground are measured using a measuring device" and "an eyeball setting step (B) for setting an eyeball template according to the measured length and radii" as recited in independent claims 7 and 8, and (3)"(D) obtaining an eyeball parameter g that represents a

positional relationship between the eyeground and images according to positions H of superimposed portions on the images;" as recited by independent claims 1 and 6, and "a parameter setting step (D) for obtaining an eyeball parameter g that represents the positional relationship between the eyeground and images according to positions H of the superimposed portions on the images" as recited in claims 7 and 8, it is plain that the combination of the Sinclair Patent, the Kobayashi Patent and the Berger Patent cannot establish a prima facie case of obviousness against the instant claims.

## V. CONCLUSION

Claims 1-4 and 6-8 recite statutory subject matter in accordance with 35 U.S.C. § 101. Furthermore, the Examiner's rejection of claims 1-4 and 6-8 under 35 U.S.C. § 103(a) is untenable and should be withdrawn because the combined teachings of the Sinclair Patent, the Tobayashi Patent and the Berger Patent fails to teach, or suggest, (1) the steps of: "(A) measuring a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground using a measuring device" and "(B) setting an eyeball template according to the measured length and radii" as recited in independent claims 1 and 6, and (2) "a shape measuring step (A) in which a length from surface of a cornea to the eyeground of an eyeball and radii of curvatures at a plurality of positions on the eyeground are measured using a measuring device" and "an eyeball setting step (B) for setting an eyeball template according to the measured length and radii" as recited in independent claims 7 and 8, and (3)"(D) obtaining an eyeball parameter g that represents a positional relationship between the eyeground and images according to positions H of

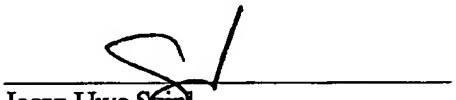
superimposed portions on the images;" as recited by independent claims 1 and 6, and "a parameter setting step (D) for obtaining an eyeball parameter g that represents the positional relationship between the eyeground and images according to positions H of the superimposed portions on the images" as recited in claims 7 and 8.

For all of the above reasons, claims 1-4 and 6-8 are in condition for allowance and a prompt notice of allowance is earnestly solicited.

Questions are welcomed by the below-signed attorney for Applicants.

Respectfully submitted,

GRIFFIN & SZIPL, PC



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Annotated Sheet

Fig.1